FIGURE 1 A

NUCLEOTIDE SEQUENCE

>protease D-G (SEQ.ID.NO.:1)

CAACTTCACTTGTAGGGCTGTTTTAATCAAGCTGCCCAAAGTCCCCCAATCACTCCTGGA
ATACACAGAGAGAGGCAGCAGCTTGCTCAGCGGACAAGGATGCTGGGCGTGAGGGACCAA
GGCCTGCCCTGCACTCGGGCCTCCTCCAGCCAGTGCTGACCAGGGACTTCTGACCTGCTG
GCCAGCCAGGACCTGTGTGGGGAGGCCCTCCTGCTGCCTTGGGGTGACAATCTCAGCTCC
AGGCTACAGGGAGACCGGGAGGATCACAGAGCCAGCATGGATCCTGACAGTGATCAACCT
CTGAACAGCCTCGATGTCAAACCCCTGCGCAAACCCCGTATCCCCATGGAGACCTTCAGA
AAGGTGGGGATCCCCATCATCATAGCACTACTGAGCCTGGCGAGTATCATCATTGTGGTT
GTCCTCATCAAGGTGATTCTGGATAAATACTACTTCCTCTGCGGGCAGCCTCTCCACTTC
ATCCCGAGGAAGCAGCTGTGTGACGGAGAGCTGGACTGTCCCTTGGGGGAGGACGAGGAG
CACTGTGTCAAGAGCTTCCCCGAAGGGCCTGCAGTGGCAGTCCGCCTCTCCAAGGACCGA
TCCACACTGCAGGTGCTGGACTCGGCCACAGGGAACTGGTTCTCTGCCTGTTTCGACAAC
TTCACAGAAGCTCTCGCTGAGACAGCCTGTAGGCAGATGGGCTACAGCAGCAAACCCACT
TTCAGAGCTGTGGAGATTGGCCCAGACCAGGATCTGGATGTTGTTGAAATCACAGAAAAC
AGCCAGGAGCTTCGCATGCGGAACTCAAGTGGGCCCTGTCTCTCAGGCTCCCTGGTCTCC
CTGCACTGTCTTGCCTGTGGGAAGAGCCTGAAGACCCCCCGTGTGGTGGGTGGGGAGGAG
GCCTCTGTGGATTCTTGGCCTTGGCAGGTCAGCATCCAGTACGACAAACAGCACGTCTGT
GGAGGGAGCATCCTGGACCCCCACTGGGTCCTCACGGCAGCCCACTGCTTCAGGAAACAT
ACCGATGTGTTCAACTGGAAGGTGCGGGCAGGCTCAGACAAACTGGGCAGCTTCCCATCC
CTGGCTGTGGCCAAGATCATCATCATTGAATTCAACCCCATGTACCCCAAAGACAATGAC
ATCGCCCTCATGAAGCTGCAGTTCCCACTCACTTTCTCAGGCACAGTCAGGCCCATCTGT
CTGCCCTTCTTTGATGAGGAGCTCACTCCAGCCACCCCACTCTGGATCATTGGATGGGGC
TTTACGAAGCAGAATGGAGGGAAGATGTCTGACATACTGCTGCAGGCGTCAGTCCAGGTC
ATTGACAGCACACGGTGCAATGCAGACGATGCGTACCTGGGGGAAGTCACCGAGAAGATG
ATGTGTGCAGGCATCCCGGAAGGGGGTGTGGACACCTGCCAGGGTGACAGTGGTGGGCCC
CTGATGTACCAATCTGACCAGTGGCATGTGGTGGGCATCGTTAGCTGGGGCTATGGCTGC
GGGGGCCCGAGCACCCCAGGGGTATACACCAAGGTCTCAGCCTATCTCAACTGGATCTAC
AATGTCTGGAAGGCTGAGCTGTAATGCTGCTGCCCCTTTGCAGTGCTGGGAGCCGCTTCC
TTCCTGCCCTGCCCACCTGGGGATCCCCCAAAGTCAGACACAGAGCAAGAGTCCCCTTGG
GTACACCCCTCTGCCCACAGCCTCAGCATTTCTTGGAGCAGCAAAGGGCCTCAATTCCTA
TAAGAGACCCTCGCAGCCCAGAGGCGCCCAGAGGAAGTCAGCAGCCCTAGCTCGGCCACA
CTTGGTGCTCCCAGCATCCCAGGGAGAGACACAGCCCACTGAACAAGGTCTCAGGGGTAT
TGCTAAGCCAAGAAGGAACTTTCCCACACTACTGAATGGAAGCAGGCTGTCTTGTAAAAG
CCCAGATCACTGTGGGCTGGAGAGGAGAAGGAAAGGGTCTGCGCCAGCCCTGTCCGTCTT
CACCCATCCCCAAGCCTACTAGAGCAAGAAACCAGTTGTAATATAAAATGCACTGCCTAC
TGTTGGTATGACTACCGTTACCTACTGTTGTCATTGTTATTACAGCTATGGCCACTATTA
TTAAAGAGCTGTGTAACATCA

FIGURE 1 B

AA SEQUENCE

>protease D-G (SEQ.ID.NO.:2)

MDPDSDQPLNSLDVKPLRKPRIPMETFRKVGIPIIIALLSLASIIIVVVLIKVILDKYYF
LCGQPLHFIPRKQLCDGELDCPLGEDEEHCVKSFPEGPAVAVRLSKDRSTLQVLDSATGN
WFSACFDNFTEALAETACRQMGYSSKPTFRAVEIGPDQDLDVVEITENSQELRMRNSSGP
CLSGSLVSLHCLACGKSLKTPRVVGGEEASVDSWPWQVSIQYDKQHVCGGSILDPHWVLT
AAHCFRKHTDVFNWKVRAGSDKLGSFPSLAVAKIIIIEFNPMYPKDNDIALMKLQFPLTF
SGTVRPICLPFFDEELTPATPLWIIGWGFTKQNGGKMSDILLQASVQVIDSTRCNADDAY
QGEVTEKMMCAGIPEGGVDTCQGDSGGPLMYQSDQWHVVGIVSWGYGCGGPSTPGVYTKV
SAYLNWIYNVWKAEL

FIGURE 2

PHYLOGENETIC TREE

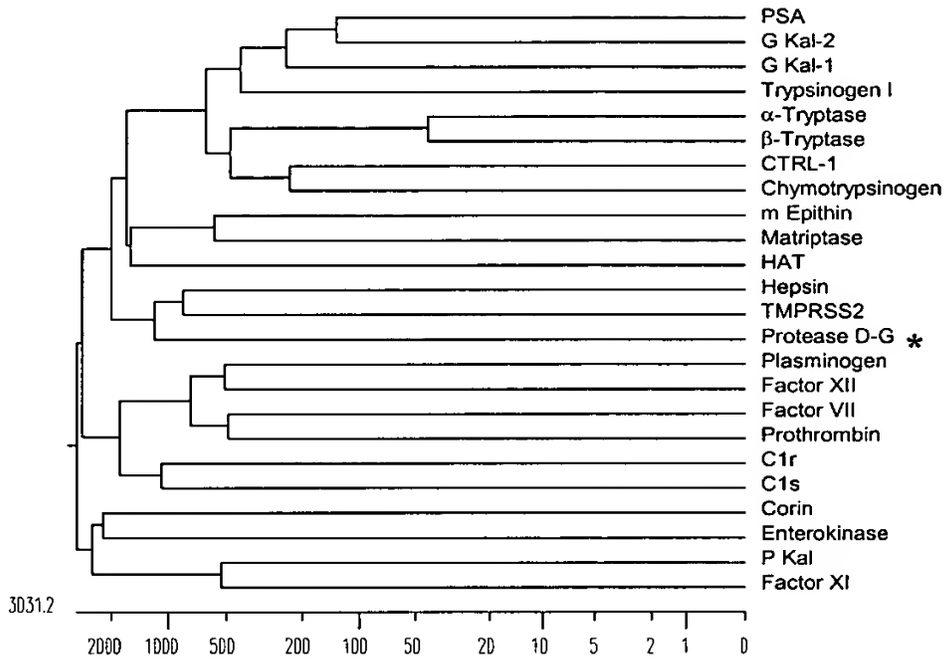


FIGURE 3

TISSUE DISTRIBUTION

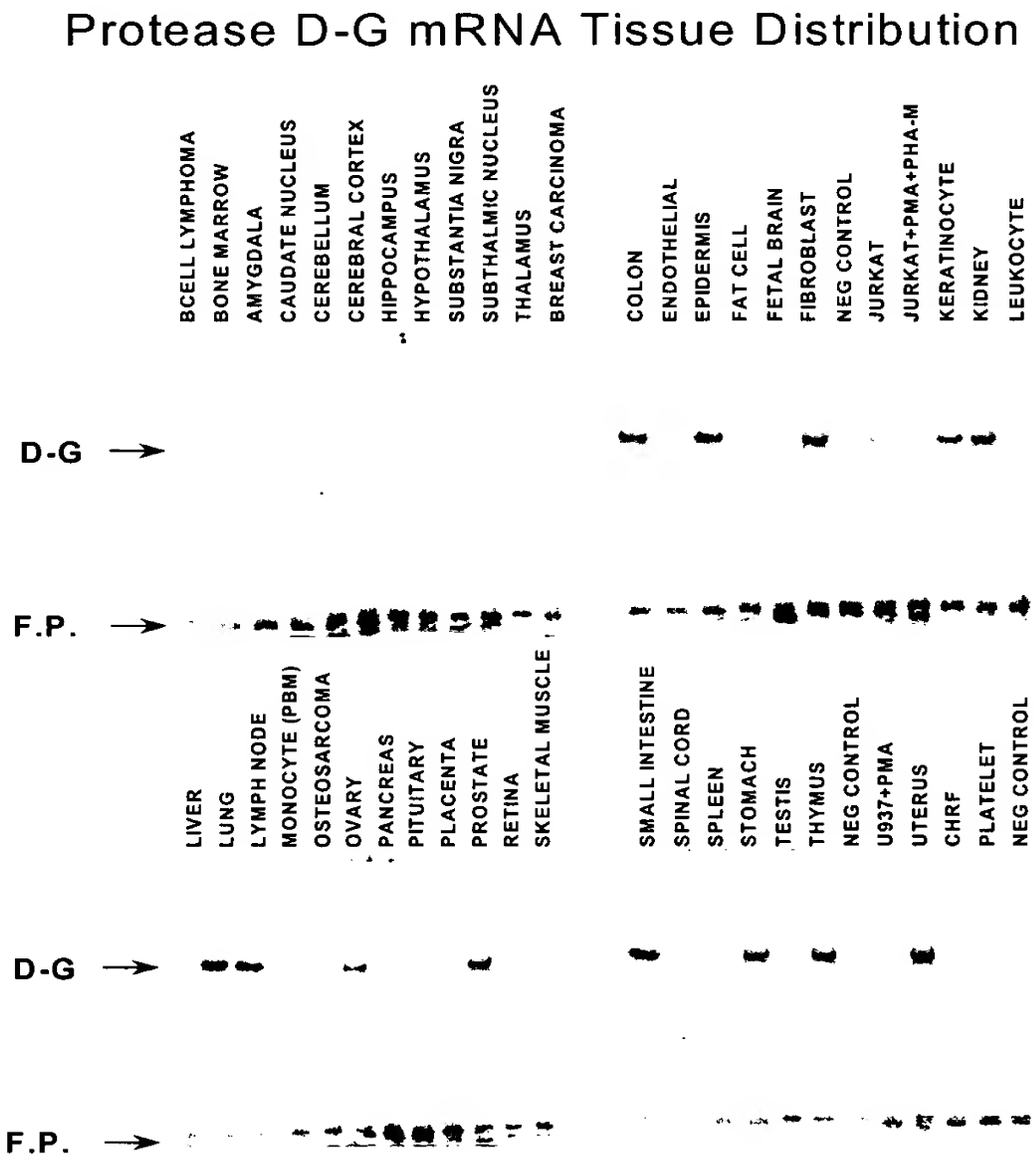


FIGURE 4 -A

CONSTRUCT NUCLEOTIDE SEQUENCE

>PFEK-D-G-HIS ERI-HCII (SEQ.ID.NO.:8)

GAATTCACCACCATGGACAGCAAAGGTTCGTCGCAGAAATCCCGCCTGCTCCTGCTGCTG
GTGGTGTCAAATCTACTCTTGTGCCAGGGTGTGGTCTCCGACTACAAGGACGACGACGAC
GTGGACGCGGCCGCTCTTGCTGCCCCCTTTGATGATGATGACAAGATCGTTGGGGGCTAT
GCTCTAGATGTGGATTCTTGGCCTTGGCAGGTCAGCATCCAGTACGACAAACAGCACGTC
TGTGGAGGGAGCATCCTGGACCCCCACTGGGTCCTCACGGCAGCCCACTGCTTCAGGAAA
CATACCGATGTGTTCAACTGGAAGGTGCGGGCAGGCTCAGACAAACTGGGCAGCTTCCCA
TCCCTGGCTGTGGCCAAGATCATCATCATTGAATTCAACCCCATGTACCCCAAAGACAAT
GACATCGCCCTCATGAAGCTGCAGTTCCCACTCACTTTCTCAGGCACAGTCAGGCCCATC
TGTCTGCCCTTCTTTGATGAGGAGCTCACTCCAGCCACCCCACTCTGGATCATTGGATGG
GGCTTTACGAAGCAGAATGGAGGGAAGATGTCTGACATACTGCTGCAGGCGTCAGTCCAG
GTCATTGACAGCACACGGTGCAATGCAGACGATGCGTACCTGGGGGGAAGTCACCGAGAAG
ATGATGTGTGCAGGCATCCCGGAAGGGGGTGTGGACACCTGCCAGGGTGACAGTGGTGGG
CCCCTGATGTACCAATCTGACCAGTGGCATGTGGTGGGCATCGTTAGCTGGGGCTATGGC
TGCGGGGGCCCGAGCACCCCAGGGGTATACACCAAGGTCTCAGCCTATCTCAACTGGATC
TACAATGTCTGGAAGGCTGAGCTGTCTAGACATCACCATCACCATCACTAGCGGCCGCTT
CCCTTTAGTGAGGGTTAATGCTTCGAGCAGACATGATAAGATACATTGATGAGTTTGGAC
AAACCACAACTAGAATGCAGTGAAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTG
CTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAGCTTGTCGAGAAGTACTAGAG
GATCATAATCAGCCATACCACATTTGTAGAGGTTTTACTTGCTTTAAAAAACCTCCCACA
CCTCCCCCTGAACCTGAAACATAAAATGAATGCAATTGTTGTTGTTAAC

FUSION PROTEIN

>PFEK-D-G-HIS (SEQ.ID.NO.:9)

MDSKGSSQKSRLLLLLVVSNLLLCQGVVSDYKDDDDVDAAALAAPFDDDDKIVGGYALDVDS
WPWQVSIQYDKQHVCGGSILDPHWVLTAAHCFRKHTDVFNWKVRAGSDKLGSFPSLAVAKII
IIEFNPMYPKDNDIALMKLQFPLTFSGTVRPICLPFFDEELTPATPLWIIGWGFTKQNGGKM
SDILLQASVQVIDSTRCNADDAYQGEVTEKMMCAGIPEGGVDTCQGDSGGPLMYQSDQWHVV
GIVSWGYGCGGPSTPGVYTKVSAYLNWIYNVWKAELSRHHHHHH

FIGURE 4-B

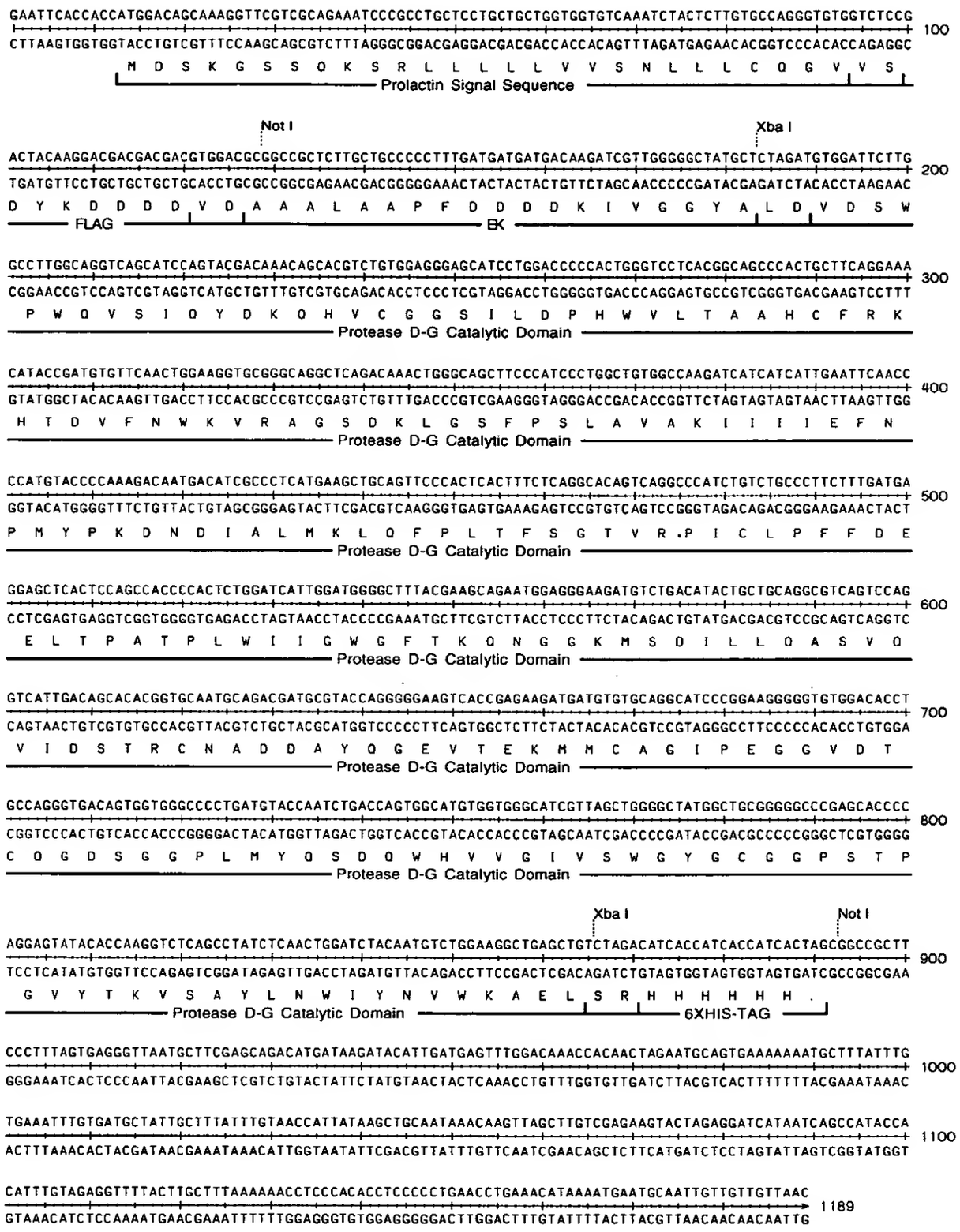

Prolactin Signal Sequence
Not I
Xba I
FLAG
EK
Protease D-G Catalytic Domain
Protease D-G Catalytic Domain
Protease D-G Catalytic Domain
Protease D-G Catalytic Domain
Protease D-G Catalytic Domain
Xba I
Not I
Protease D-G Catalytic Domain
6XHIS-TAG

FIGURE 5

PAGE - WESTERN BLOT

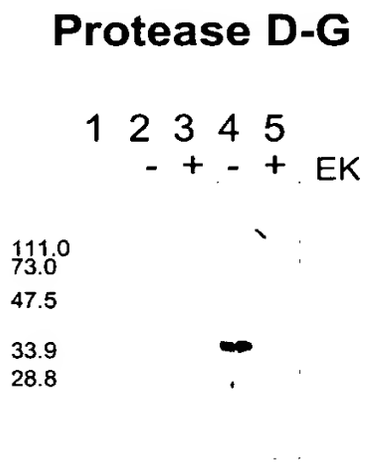
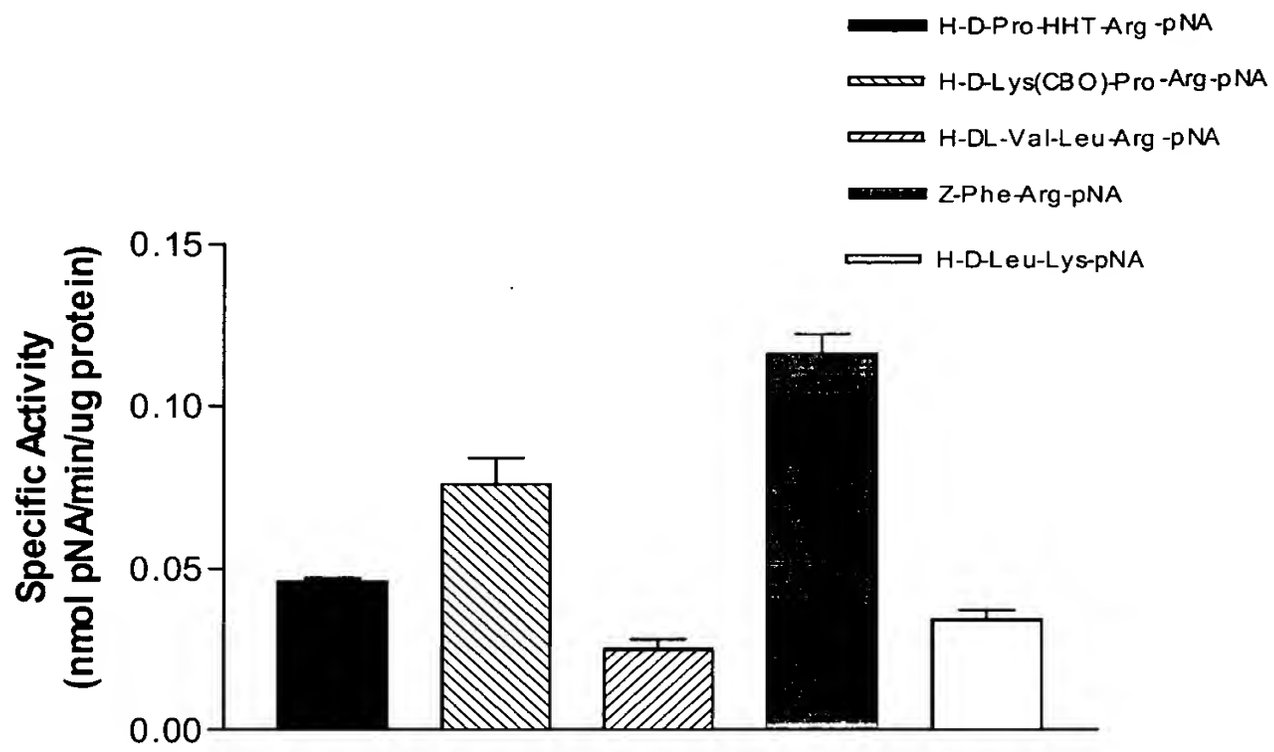


FIGURE 6

Chromogenic Activity of Protease D-G



H = free amine
D = D-isomer
CBO = carbobenzoxy
HHT = hexahydrotyrosyl
Z = benzyloxycarbonyl
pNA = p-nitroanilide
DL = D- and L- isomers